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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,424	08/24/2004	Jong-Bok Park	030681-694	7572
21839	7590	08/31/2006		
BUCHANAN, INGERSOLL & ROONEY PC POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			EXAMINER PRINCE, FRED G	
			ART UNIT 1724	PAPER NUMBER

DATE MAILED: 08/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/505,424

Applicant(s)

PARK ET AL.

Examiner

Fred Prince

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☒ Claim(s) 2-11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kang (WO 01/66475) in view of Hoffland (US Pat No 6,054,044).

Kang discloses a wastewater treatment apparatus for removing nitrogen and phosphorus having an anaerobic tank (1), an anoxic tank (2), an aerobic tank (3) and a clarifier (5), wherein the aerobic tank includes has a baffle (4a; page 5, lines 11-17) installed at one side thereof (Fig. 2) to form a dissolved oxygen reducing zone for reducing the concentration of dissolved oxygen contained in internally recycled wastewater returned from a dissolved oxygen reducing zone while increasing the concentration of dissolved oxygen (page 11, lines 19-21) contained in treated effluent supplied from a part other than the dissolved oxygen reducing zone of the aerobic tank to a clarifier in a subsequent stage (page 4, lines 7-11). Kang does not disclose a pre-anoxic tank.

In any case, Hoffland et al. disclose the well known concept of providing a pre-anoxic tank (8) to a wastewater treatment apparatus in order to, for example, foster growth of denitrifying microorganisms and suitably condition the wastewater prior to downstream anaerobic treatment (col. 9, lines 44-49).

Accordingly, it would have been readily obvious for the skilled artisan to modify the apparatus of Kang such that it includes a pre-anoxic tank to a wastewater treatment apparatus in order to, for example, foster growth of denitrifying microorganisms and suitably condition the wastewater prior to downstream anaerobic treatment, as suggested by Hoffland et al.

Allowable Subject Matter

3. Claims 2-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter: While claim 1 is not patentable for the reasons provided above, and it is known in the art to provide an anaerobic tank to which the wastewater treated by an anoxic tank and some of raw wastewater are introduced and in which a phosphorus release reaction by microorganisms occurs under anaerobic conditions; a denitrifying phosphorus accumulating organism (dPAO) tank to which the wastewater treated by the anaerobic tank and the wastewater treated by a dissolved oxygen reducing zone of the aerobic tank are introduced and in which denitrification and removal of phosphorus occur at the same time by dPAOs; an anoxic tank to which the wastewater treated by the dPAO tank and some of raw wastewater are introduced and in which denitrification of nitrate nitrogen occurs under anoxic conditions; and an aerobic tank to which the wastewater treated by the anoxic tank is introduced and in which nitrification and luxury uptake of phosphorus occur with supply of oxygen (see Kang above), in the examiner's

opinion, the prior art fails to teach or fairly suggest providing a pre-anoxic tank having the recited positioning and operational elements. The instant invention provides the advantage of suppressing inhibiting actions by nitrate nitrogen in the anaerobic tank, so that the wastewater introduced to the anaerobic tank is maintained under completely anaerobic conditions thereby subsequently improving organic matter removal in the anoxic tank.

Response to Arguments

5. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection necessitated by applicant's amendment.

Conclusion


6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Prince whose telephone number is (571) 272-1165. The examiner can normally be reached on Monday-Thursday, 6:30-4:00; alt. Fridays 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Fred Prince
Primary Examiner
Art Unit 1724

fgp
8/28/06